

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re:	Application No. 10/714,233
Filed:	November 14, 2003
Applicant:	Don G. BARTELL
Title:	INTEGRATED FLEXIBLE DISPLAY AND SPEAKER APPARATUS AND METHOD
Art Unit:	2615
Examiner:	Corey P. CHAU
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Attorney Docket:	CML00844T (78933)
Customer No.:	22242

**Confirmation No. 2477**

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

# APPEAL BRIEF

Sir:

Pursuant to 37 C.F.R. §1.192, the applicants hereby respectfully submit the following Brief in support of their appeal.

**(1) Real Party in Interest**

The real party in interest is Motorola, Inc., a Delaware corporation having a primary place of business in Schaumburg, Illinois.

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**(2) Related Appeals and Interferences**

There are no related appeals or interferences known to appellant, the appellant's legal representative, or assignee that will directly affect, or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

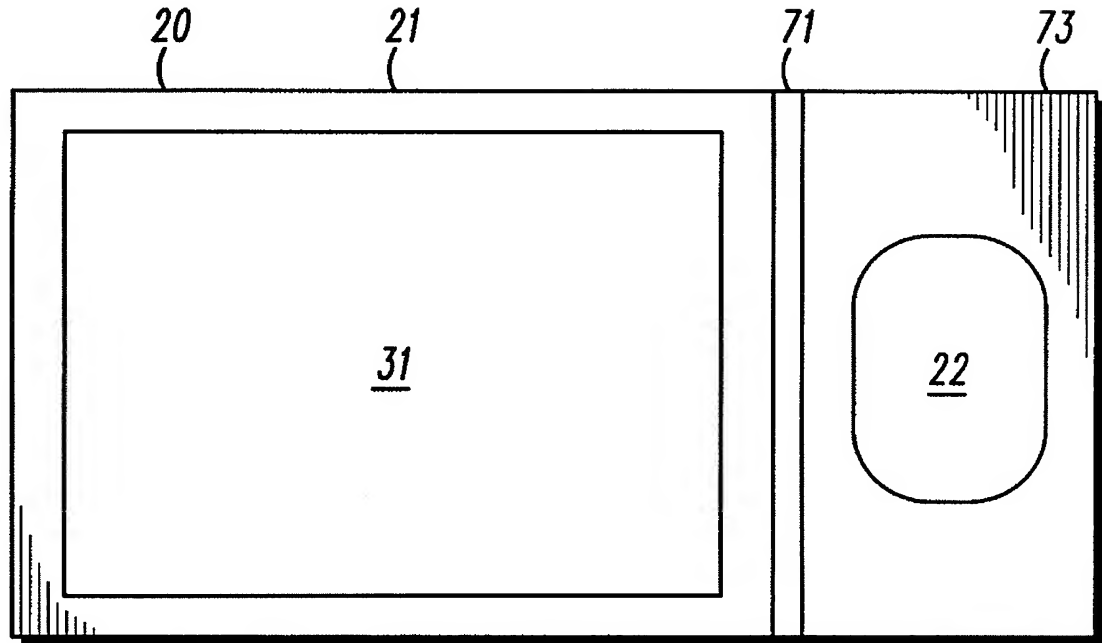
Claims 1, 3-6, and 8-30 are pending and presently stand finally rejected and constitute the subject matter of this appeal.

**(4) Status of Amendments**

No post-final amendments have been submitted.

**(5) Summary of Claimed Subject Matter**

This integrated display and speaker apparatus makes use of flexible components to yield an integrated apparatus that is, itself, flexible. FIG. 7 provides a relevant illustrative example (with FIG. 7 being reproduced below for the convenience of the reader).



**FIG. 7**

The integrated display and speaker apparatus (20) features a flexible display (31)<sup>1</sup> that is formed on a flexible substrate (21) and a flexible speaker (22)<sup>2</sup> that is formed on a flexible substrate (73) that may be the same substrate as the above-mentioned substrate or different as appropriate to a given application setting.<sup>3</sup> An acoustic dampener (71)<sup>4</sup> is disposed between these substrate portions (21 and 73) and the flexible display (31) and flexible speaker (22).<sup>5</sup> So configured, the acoustic dampener (71) serves to dampen acoustic energy as is generated by the speaker (22) to thereby mitigate interference with the operation of the display (31).<sup>6</sup> As illustrated, the acoustic dampener (71) is only partially disposed about the flexible speaker

1 This comprising the “flexible display means” of independent claim 25.

2 This comprising the “flexible speaker means” of independent claim 25.

3 Application at page 3, line 30 (paragraph 18) – page 4, line 13 (paragraph 19).

4 This comprising the “flexible dampening means” of independent claim 25.

5 Application at page 5, line 28 (paragraph 24) – page 6, 12 (paragraph 25).

(22) notwithstanding that the acoustic dampener (71) substantially fully separates the one flexible substrate area (21) from the other (73).

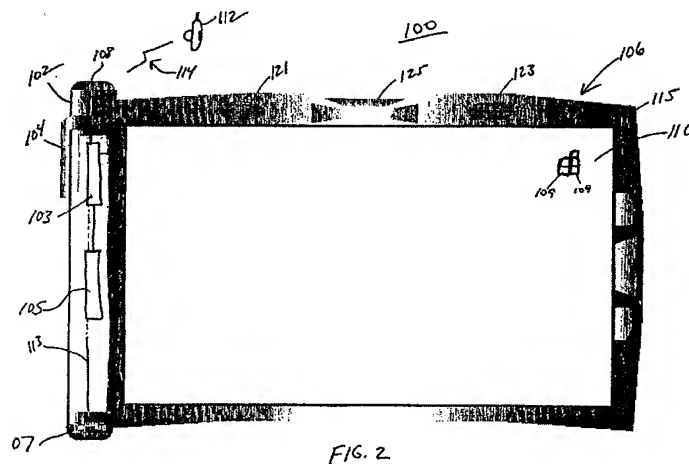
**(6) Grounds of Rejection to be Reviewed on Appeal**

Claims 1, 3-5, 8-11, 17-25, and 30 were rejected under 35 U.S.C. § 103(a) as being obvious given US 2003/0109286 (Hack) in view of US 6,215,655 (Heady). Claims 6, 12, and 13 were also rejected under 35 U.S.C. § 103(a) as being obvious given Hack in view of Heady and further in view of US 2003/0222334 (Ikeda). Lastly, claims 14-16 and 26-29 were rejected under 35 U.S.C. § 103(a) as being obvious given Hack in view of Heady and further in view of "Electroactive Polymer Artificial Muscles Acoustic Applications" by SRI International.

**(7) Argument**

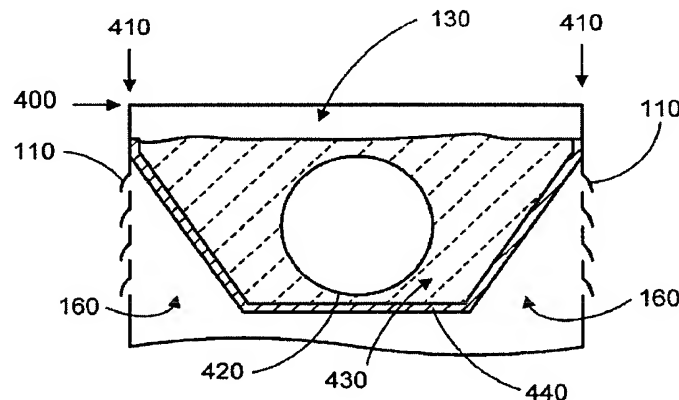
***Rejections under 35 U.S.C. 103(a)***

The Hack reference discloses a collapsible multimedia system that features both a display (110) and a speaker (123) as shown in FIG. 2 of Hack (reproduced below for the convenience of the reader).



The Examiner correctly acknowledges that Hack does not disclose “an acoustic dampener operably coupled between the first flexible substrate portion and the second flexible substrate portion”<sup>7</sup> and relies upon the Heady reference to provide the missing elements.

The Heady reference discloses a drive-in ordering apparatus that is exposed to various environmental influences such as “weather conditions, vibration, and vandalism.”<sup>8</sup> Heady therefore seeks a way to isolate his speakers and microphones “*from* potential vibration by *surrounding* them with vibration dampeners such as foam or other padding or insulation . . . [such that any] vibration of the housing that might effect the speakers and microphones will then be reduced.”<sup>9</sup> Heady’s acoustic dampener material is readily viewed in Heady’s FIG. 4 (reproduced below for the convenience of the reader) as denoted by reference numeral 130.



The Examiner admits<sup>10</sup> that modifying Hack to include the acoustic dampener teachings of Heady will not yield an acoustic dampener that is only partially disclosed around the speaker; Heady clearly teaches the opposite. The Examiner then posits, however, that “it would have been obvious to one having ordinary skill in the art to provide any desired configuration of the dampener that would isolate the transducer from potential vibration such as the acoustic dampener only partially disposed about the flexible audio transducer to

7 Office communication mailed April 5, 2006, page 2, paragraph 3.

8 Column 2, lines 56-57.

9 Column 2, line 65 – column 3, line 2, emphasis provided.

10 Office communication dated April 5, 2006, page 3, lines 8 – 11.

substantially fully separate the first portion from the second portion, which would reduce cost.”<sup>11</sup>

First, the applicant notes that the teachings of Hack and Heady do not exist in a vacuum. Hack offers teachings as accord with respect to a handheld multimedia device while Heady offers teachings with respect to a kiosk-like mechanism that is exposed to a variety of external environmental influences. With this in mind, Heady’s teachings regarding the use of acoustic dampeners are provided in order to prevent external vibrations from interfering *with* the operation of a speaker. Hack suffers no such operational circumstances; that is, there is nothing in Hack to suggest that Hack’s speaker needs to be protected *from* vibration sources such as “rain or hail, automobiles, . . . wind, and cooling fans for the housing.” As a result, one of average skill in the art, being fully cognizant of the complete teachings of both Hack and Heady, would find no motivation to combine their teachings as suggested by the Examiner.

The Examiner has suggested that such a configuration could result out of a desire to reduce cost. As Hack does not suffer the operational circumstances of Heady, however, the person of average skill in the art would perceive and understand that adding Heady’s acoustic dampeners to Hack, where they will serve no useful purpose, will represent instead an *increased* cost. This realization, of course, would serve as a powerful point of *unmotivation* to make such a combination and alteration.

The applicant therefore submits that one of average skill in the art, taking these prior art references as a whole and without using the benefit of hindsight based upon the present application, would not be motivated to: (1) adopt the use of Heady’s acoustic dampeners in Hack; and (2) to then modify Heady’s acoustic dampeners, which are disclosed as “surrounding” the speaker, to *not* fully surround the speaker.

These points of difference are well represented in the claims. Independent claim 1 provides for:

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<sup>11</sup> *Id.* at page 3, lines 11 – 15.

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an acoustic dampener operably coupled between the first flexible substrate portion and the second flexible substrate portion and only partially disposed about the flexible audio transducer to substantially fully separate the first portion from the second portion.

Independent claim 20 provides for:

disposing an acoustic dampener between the first flexible substrate-portion and the second flexible substrate portion and only partially disposed about the flexible speaker to substantially fully separate the first portion from the second portion.

And independent claim 25 provides for:

acoustic dampening means operably and integrally coupled between the flexible display means and the flexible speaker means and only partially disposed about the flexible speaker means to substantially fully separate the flexible speaker means from the flexible display means.

The applicant therefore respectfully submits that independent claims 1, 20, and 25 are readily distinguished from the references of record and may be passed to allowance.

The remaining claims are ultimately dependent upon one of the independent claims discussed above. While the applicant believes that other arguments are available to highlight the allowable subject matter presented in various of these dependent claims, the applicant also believes that the comments set forth herein regarding allowability of the independent claims are sufficiently compelling to warrant present exclusion of such additional points for the sake of brevity.

**(8) Claims Appendix**

1. An apparatus comprising:

- a flexible substrate having first and second portions;
- a flexible active display supported by the first flexible substrate portion;
- a flexible audio transducer proximally disposed with respect to the flexible active display and supported by the second flexible substrate portion;
- an acoustic dampener operably coupled between the first flexible substrate portion and the second flexible substrate portion and only partially disposed about the flexible audio transducer to substantially fully separate the first portion from the second portion.

2. (Cancelled)

3. The apparatus of claim 1 further comprising at least a second flexible audio transducer proximally disposed with respect to the flexible active display.

4. The apparatus of claim 3 wherein the flexible substrate that supports the flexible active display and the flexible audio transducer also supports the at least a second flexible audio transducer.

5. The apparatus of claim 1 further comprising a plurality of flexible audio transducers disposed substantially equidistant from one another about the flexible active display.

6. The apparatus of claim 1 wherein the flexible substrate comprises:

- a first flexible substrate that supports the flexible active display;
- a second flexible substrate that supports the flexible audio transducer.

7. (Cancelled)



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8. The apparatus of claim 1 wherein the acoustic dampener includes a vacuum disposed therein.

9. The apparatus of claim 1 wherein the acoustic dampener comprises a discontinuous material.

10. The apparatus of claim 9 wherein the discontinuous material comprises a woven structure.

11. The apparatus of claim 9 wherein the discontinuous material includes a plurality of holes disposed through the material.

12. The apparatus of claim 6 wherein the first and second flexible substrate are comprised of a similar material.

13. The apparatus of claim 6 wherein the first and second flexible substrate are comprised of differing materials.

14. The apparatus of claim 1 wherein the flexible audio transducer is comprised of at least one layer of a dielectric elastomer polymer material.

15. The apparatus of claim 14 wherein the at least one layer of a dielectric elastomer polymer material has a compliant electrode material disposed on at least one side thereof.

16. The apparatus of claim 15 wherein the at least one layer of a dielectric elastomer polymer material has a compliant electrode material disposed on both of opposing sides thereof.

17. The apparatus of claim 1 further comprising a selective rigidizer disposed proximal to the flexible audio transducer.

18. The apparatus of claim 1 further comprising a rigid backing disposed at least partially coextensively with the flexible audio transducer.

19. The apparatus of claim 1 further comprising a housing and a retraction mechanism disposed therein that is operably coupled to the flexible active display and the flexible audio transducer.

20. A method of forming a flexible combined display and speaker apparatus, comprising:

- providing a flexible substrate having first and second portions;
- supporting a flexible active display with the first flexible substrate portion;
- supporting a flexible speaker with the second flexible substrate portion;
- disposing an acoustic dampener between the first flexible substrate-portion and the second flexible substrate portion and only partially disposed about the flexible speaker to substantially fully separate the first portion from the second portion.

21. The method of claim 20 further comprising:

- temporarily disposing the flexible substrate, and hence the flexible active display and the flexible speaker, in a non-planar configuration.

22. The method of claim 21 wherein temporarily disposing the flexible substrate, and hence the flexible active display and the flexible speaker, in a non-planar configuration comprises rolling the flexible substrate, and hence the flexible active display and the flexible speaker, into a substantially cylindrical shape.

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23. The method of claim 22 further comprising:

- retractably disposing at least a portion of the substantially cylindrical shape into a housing.

24. The method of claim 21 wherein temporarily disposing the flexible substrate, and hence the flexible active display and the flexible speaker, in a non-planar configuration comprises folding the flexible substrate.

25. An integrated display and speaker comprising:

- flexible display means for selectively providing an active display on a conformably flexible display surface;
- flexible speaker means integrally configured with respect to the flexible display means for selectively providing audible sound;
- acoustic dampening means operably and integrally coupled between the flexible display means and the flexible speaker means and only partially disposed about the flexible speaker means to substantially fully separate the flexible speaker means from the flexible display means.

26. The integrated display and speaker of claim 25 wherein the flexible speaker means comprises a dielectric elastomer polymer.

27. The integrated display and speaker of claim 26 wherein the dielectric elastomer polymer has a compliant electrode material disposed on at least one side thereof.

28. The integrated display and speaker of claim 27 wherein the dielectric elastomer polymer has a compliant electrode material disposed on at least two opposing sides thereof.

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29. The integrated display and speaker of claim 28

wherein the compliant electrode material on both sides of the dielectric elastomer polymer comprises a substantially identical material.

30. The apparatus of claim 1 further comprising a plurality of flexible audio transducers proximally disposed with respect to the flexible active display and supported by the flexible substrate, wherein at least two of the flexible audio transducers comprise speakers.

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**(9) Evidence Appendix**

Not applicable.


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**(10) Related Proceeding Appendix**

Not applicable.

Respectfully submitted,

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